

CONTENTS

Numbers 1-3

	1	Preface
R. Hawkey	5	The lifelong learning game: season ticket or free transfer?
F. Botana and J.L. Valcarce	21	A dynamic-symbolic interface for geometric theorem discovery
C. Bradley and M. Oliver	37	The evolution of pedagogic models for work-based learning within a virtual university
H.M. Cartwright and K. Valentine	53	A spectrometer in the bedroom—the development and potential of internet-based experiments
C. Colwell, E. Scanlon and M. Cooper	65	Using remote laboratories to extend access to science and engineering
J.K. Crosier, S. Cobb and J.R. Wilson	77	Key lessons for the design and integration of virtual environments in secondary science
B. Parkinson and P. Hudson	95	Extending the learning experience using the Web and a knowledge-based virtual environment
P. Louvieris and A. Lockwood	103	IT induced business transformation in higher education: an analysis of the UniCafé experience and its implications
F.-Y. Yu and H.-J.J. Yu	117	Incorporating e-mail into the learning process: its impact on student academic achievement and attitudes
A. Jelfs and C. Colbourn	127	Virtual seminars and their impact on the rôle of the teaching staff
M. Loomes, A. Shafarenko and M.J. Loomes	137	Teaching mathematical explanation through audio-graphic technology
J. Cook and M. Oliver	151	Designing a toolkit to support dialogue in learning
L. Masterman and M. Sharples	165	A theory-informed framework for designing software to support reasoning about causation in history
D. Mavers, B. Somekh and J. Restorick	187	Interpreting the externalised images of pupils' conceptions of ICT: methods for the analysis of concept maps

C. McAvinia and M. Oliver	209	"But my subject's different": a web-based approach to supporting disciplinary lifelong learning skills
J.J. Pear and D.E. Crone-Todd	221	A social constructivist approach to computer-mediated instruction
M. Thomas and D. Hofmeister	233	Assessing the effectiveness of technology integration: message boards for strengthening literacy
C.-C. Tsai, S.S.J. Lin and S.-M. Yuan	241	Developing science activities through a networked peer assessment system
L.R. Winer and J. Cooperstock	253	The "Intelligent Classroom": changing teaching and learning with an evolving technological environment
J.M.O. Yazon, J.A. Mayer-Smith and R.J. Redfield	267	Does the medium change the message? The impact of a web-based genetics course on university students' perspectives on learning and teaching

Number 4

E. Wood, T. Willoughby, J. Specht and L. Porter	287	An examination of how a cross-section of academics use computer technology when writing academic papers
J. Chamoso Sánchez, L. Hernández Encinas, R. López Fernández and M. Rodríguez Sánchez	303	Designing hypermedia tools for solving problems in mathematics
J. Gal-Ezer and D. Lupo	319	Integrating internet tools into traditional CS distance education: students' attitudes
C.T. Panagiotakopoulos and G.S. Ioannidis	331	Assessing children's understanding of basic time concepts through multimedia software
L.E. Anido, M.J. Fernández, M. Caeiro, J.M. Santos, J.S. Rodríguez and M. Llamas	351	Educational metadata and brokerage for learning resources
M. Grabe and E. Sigler	375	Studying online: evaluation of an online study environment
W.M. Cates	385	Systematic selection and implementation of graphical user interface metaphors
	399	Book review

